



**City of Dallas**

# **City of Dallas Green Building Program Residential**

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# Provider Training Program



## Agenda:

**Module 1** - Green Building Program General Background &  
Phase 2 Residential Code Provisions

**Module 2** - Permitting Process & Third-party Provider program

**Module 3** - Plan Review and Inspection, Q&A and Discussion

**Module 4** - Exam



# Provider Training Program



## Module 1

# Green Building Program General Background & Residential Code Provisions



# Background



## Why have an ordinance?

- Create awareness of the positive benefits of green buildings
- Encourage building owners, design professionals, and builders to incorporate green building design strategies, construction practices, and operations in all proposed projects
- Lower water and energy consumption
- Reduce heat island effect
- Reduce negative impact of buildings on environment and occupants of the building



# Background



## Code adoption process

- Volunteer task force (Green Building Task Force) of diverse stakeholders: design professionals, contractors, owners, developers, building organizations, property managers, realtors, third party providers and city staff
- Tasked with researching green building programs, codes and standards and recommending best path for Dallas
- Two work groups: commercial and residential
- Met weekly for 4 months



# Background



- **Ordinance 27131; Resolution 08-1070-** adopted April 9, 2008, establishes the Green Building Program and amends Chapter 52 “Administrative Procedures”, Chapter 53 “Dallas Building Code” and Chapter 57 “Dallas One and Two Family Dwelling Code”
  - **Ordinance 27759; Resolution 09-2986-** adopted December 9, 2009 **amends water provisions and includes green roofs;**
  - **Ordinance 28386; Resolution 11-2564-** adopted September 28, 2011 **amends water and energy provisions; delays phase 2 and adds third-party verification;**
- **Ordinance 28813; Resolution 12-2428-** Adopted September 26, 2012 updates and delays Phase 2, and adds Chapter 61 “Dallas Green Construction Code”
- **Ordinance 30327; Resolution 17-0212-** Adopted March 01, 2017 adopts the 2015 Edition of International Green Construction code.



# Background



# Dallas Green Ordinance



## 2008 Task Force Recommendations





# Dallas Green Ordinance



## Phase 1 – Three Different Programs

- New and Additions to Single Family and Duplex
- New and Additions to Commercial Buildings under 50,000 Sq. Ft.
- New and Additions to Commercial Buildings over 50,000 Sq. Ft



# Dallas Green Ordinance



## 2009 Amendment

- Amended 2008 Ordinance
- Added water provision options to include:
  - minimum requirements of Green Built Texas or at least 6 points of LEED for Homes

## 2011 Amendment

- Amended 2008 Ordinance
- Delayed **Phase 2** until October 2012
- Recommended modifications to Phase 2
  - Permitted LEED v3 or later
  - Required compliance with IECC 2009 for energy requirements
  - Added Third Party Provider program



# Dallas Green Ordinance



## 2012 Amendment

- Delayed **Phase 2** until October 2013
- Expanded Dallas City Code by adding new Chapter 61 based on 2012 IgCC
- Modifies Chapters 52, 53, 57
- Significantly upgraded green building program requirements



# Dallas Green Ordinance



## Phase 2 – Two Different Programs

- New and Additions to Single Family and Duplex
- New and Additions to Commercial Buildings – of any size!



# Dallas Green Ordinance



## 2015 Changes to Green Building Code

(Effective March 01, 2017)

### Compliance path for Residential: Five path options:

- Dallas Prescriptive path, or
- ICC 700 – 2012, or
- LEED v4 for Homes, or
- Green Built Texas Protocol V3 (2012), or
- Meet minimum certification requirements under an equivalent green building program approved by Building Official

Note: Formal certification is not required



# Dallas Green Ordinance



## EXCEPTIONS:

1. Additions to existing one- and two-family dwellings that are 200 square feet or less in floor area and contain no bathroom or restroom plumbing fixtures (water closets, lavatories, tubs, showers).
2. Carports, garages, storage buildings, agricultural barns, stables and similar structures that are accessory to one- and two-family dwellings 400 square feet or less in floor area.



# Dallas Green Ordinance



## Who makes final decisions?

Dallas Chief Building Official, or designated representative

## What is the Building Official's role?

- To establish green building regulations
- To administer the green building program



# Dallas Green Ordinance



## Dallas City Code

- Based on the 2021 I Codes, Electric code (NEC 2020), 2021 Dallas Existing Building Code and fire (2021 IFC)
- Green Building Ordinance modified or expanded certain City Codes
  - Chapter 52 Administrative Procedures
  - Chapter 53 Dallas Building Code
  - Chapter 57 Dallas One- and Two-Family Dwelling Code
  - Added Chapter 61 Dallas Green Building Construction Code





# Dallas Green Ordinance



## Definitions:

- Dallas City Code definitions prevail
  - Undefined terms are defined by the Building Official
  - Terms in alternate and residential compliance paths may conflict with code definitions
  - Rating systems, voluntary standards, and trade association definitions may be different
  - Comply with definitions in City Code where conflicts occur
  - City code definitions prevail





## Why is it necessary to know code definitions?

- To understand how a jurisdiction defined terms
- To know definition changes under the 2021 codes
- To know differences between code definition and definitions used by green building rating programs and trade associations
- To know how the City of Dallas has defined terms and the appropriate application
- To be able to interpret building provisions correctly



# Definitions



The provisions of *Dallas One- and Two-Family Dwelling Code* apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings, townhomes, and townhouses not more than three stories above *grade plane* in height with a separate means of egress and their *accessory structures*



# Definitions



**Residential Group R:** The use of a building or structure, or portion thereof, for sleeping purposes when not classified as Institutional Group I or when not regulated by the IRC

**R-1:** Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

- Boarding houses (*transient*) with more than 10 occupants
- Congregate living facilities (*transient*) with more than 10 occupants
- Hotels (*transient*)
- Motels (*transient*)



\*IBC 2021 Section 310.1 AND 310.2

# Definitions



**R-2:** Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature including:

- Apartment houses
- Boarding houses (nontransient) with more than 16 occupants
- Congregate living facilities (nontransient) with more than 16 occupants.
- Convents
- Dormitories
- Fraternities and sororities
- Hotels (nontransient)
- Live / work units
- Monasteries
- Motels (nontransient)
- Vacation timeshare properties



# Definitions



**R-3:** Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or R-4, or I, including:

- Buildings that do not contain more than two dwelling units
- Care facilities that provide accommodations for 5 or fewer persons receiving care
- Congregate living facilities (nontransient) with 16 or fewer occupants
- Boarding houses (nontransient and transient)
- Convents
- Dormitories
- Fraternities and sororities
- Monasteries
- Congregate living facilities (transient) with 10 or fewer occupants
- Lodging houses (transient) with 5 or fewer guest rooms and 10 or fewer occupants



# Definitions



**R-4:** Occupancy includes buildings, structures or portions thereof for more than 5 but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.5.1 or 310.5.2. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Convalescent facilities
- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities

Requirements for construction same as Group R-3, except as otherwise provided in code



# Definitions



- **HERS Index**: Home Energy Rating System. measures residential energy efficiency
  - Exterior walls above and below grade
  - Floors over unconditioned spaces
  - Ceilings and roofs
  - Attic, foundations, crawlspaces
  - Windows and doors, vents, ductwork
  - HVAC system, water heating system, thermostat
- **MERV Filter**: Minimum Efficiency Reporting Value, number relative to air filter efficiency
  - Number between 1 and 16
  - The higher the value, the greater the capability of removing extremely small contaminants
  - Higher values create more resistance to air flow; denser filter media
  - Filter density coordinated with HVAC unit





# Dallas Green Program



## Green Building Code:

- A design and construction code
- Design professionals, contractors, and owners have responsibilities to fulfill
- Commercial and residential programs
- Plan review and inspections for projects requiring permits
- Third Party Green Provider performs plan review and inspections





# Residential Compliance Paths



# Residential Path



## Residential Path:

- Applies to all new constructions, and additions
- Does not apply to interior renovations, remodels, or alternations to existing construction
- Residential providers review residential projects only:
  - One- and two-family dwelling units
  - Townhomes/townhouses as defined by City of Dallas
- Multifamily, mixed-use projects reviewed by commercial providers





# Residential Path

## Residential Compliance Paths:

- Dallas Prescriptive path or
- ICC 700 – 2012, **or**
- LEED v4 for Homes, **or**
- Green Built Texas Protocol V3 (2012), **or**
- Meet minimum certification requirements under an equivalent green building program approved by Building Official

**Note:** When following rating system path, formal registration and certification is not required





## COD Dallas Prescriptive Path requirements include:

- Stormwater
- Water efficiency
- Energy Efficiency
- Heat island mitigation
- Indoor air quality



# Residential Path

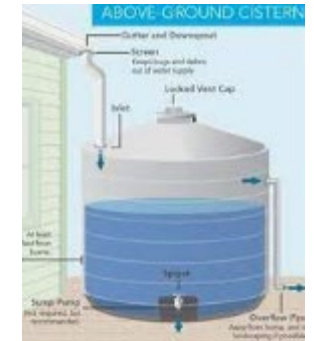


## COD Dallas Prescriptive Path

### Stormwater:

70% of nonroof area has:

- Vegetative landscape, or
- Permeable paving, or
- Sloped for water runoff to a permanent infiltration feature such as vegetated swale, onsite rain garden or rainwater cistern



# Residential Path



## COD Dallas Prescriptive Path

Water Efficiency (New Construction): Proposed projects must:

- Utilize drip irrigation emitters for all bedding areas of an approved landscape plan, **and**
- Must meet any 3 of the following:
  - Drip Irrigation
  - Lavatory Faucets: Average flow rate 2.0 gallons per minute or less
  - Shower Heads: Average flow rate of 2.0 gallons per minute or less
  - Toilets: Average flow rate of:
    - Less than or equal to 1.3 gallons per flush; or
    - Dual flush complying with ASME A 112.19.14; or
    - Comply with US EPA Water Sense; certified and labeled
  - Energy Star dishwasher
  - Energy Star clothes washer





# Residential Path

## COD Dallas Prescriptive Path

Water Efficiency Requirements (Additions): Must meet any **2** of the following:

- Lavatory Faucets: Average flow rate 2.0 gallons per minute or less
- Shower Heads: Average flow rate of 2.0 gallons per minute or less
- Toilets: Average flow rate of:
  - Less than or equal to 1.3 gallons per flush; **or**
  - Dual flush complying with ASME A 112.19.14; **or**
  - Comply with US EPA Water Sense; certified and labeled





# Residential Path



## COD Dallas Prescriptive Path

### Energy Efficiency:

All proposed projects must meet the minimum requirements of Dallas Energy Code



# Residential Path



## COD Dallas Prescriptive Path

### Heat Island Mitigation:

Proposed projects shall install:

- **Option 1:** Energy Star qualified roof system for roof with slope of 2:12 or greater, or
- **Option 2:** Vegetative roof (requires approval of Building Official), or
- **Option 3:** Radiant barrier in attic with conventional shingles, or
- **Option 4:** Encapsulated foam insulation between the roof rafters (R-22 or greater)





## COD Dallas Prescriptive Path: Heat Island Mitigation

**Option 3:** Radiant barrier with conventional shingles with following conditions:  
Radiant barrier installation shall comply with manufacturer's instructions such as:

- The shiny side of the sheet faces out
- The sheet is factory perforated.
- It is not installed on the attic floor or where the shiny side may become covered with dust, and it is not sandwiched between materials such as insulation and roof shingles
- If the radiant barrier is applied to roof sheathing, the radiant barrier must face down into the attic and may not be covered.

**Note:** Radiant barriers have no insulative or R value and are not used in place of insulation. Reflective paint is not considered a radiant barrier.





## COD Dallas Prescriptive Path: Heat Island Mitigation

**Option 4:** Encapsulated foam insulation between the roof rafters (R-22 or greater)

- Foam Encapsulated attics are more Energy efficient, and lower energy usage.
- Lower utility bills
- Reduce emissions from power plants that are a major factor in the heat island effect.



# Residential Path



## COD Dallas Prescriptive Path

### Indoor Air Quality:

#### **Air Filters:**

- MERV 8 or greater
- Air handlers capable of maintaining adequate air pressure and air flow
- Air filter housings must be airtight to prevent leakage



# Residential Path



## COD Dallas Prescriptive Path Checklist



**City of Dallas Prescriptive Path  
Project Summary and Checklist - One or Two Family Dwelling Unit.  
New Construction**

Summary					
Date of Application					
Compliance Path					
Project Identification					
Project Address					
Owner Identification					
Architect Identification					
Contractor Identification					Permit No.
Third Party Provider					Registration No.
Building Code	IRC	IBC Residential Occupancy			
Type of Building	Single Family	Duplex	Townhouse*	IBC Group R Occupancy: R-1 R-2 R-3 R-4 (circle one)	
Number of:	Stories:	Bedrooms:	Baths:		
Garage	Attached	Detached	Carport	None	
Building Sq. Footage	Lot Size:		Building Total Sq. Ft:	Area Under Roof:	Total Nonroof Area:
IECC Climate Zone	3A				
<b>Note:</b>					
<ul style="list-style-type: none"> <li>Buildings shall be designed and constructed in accordance with the Energy provisions of Dallas Energy code. Compliance with IECC must be demonstrated separately by City of Dallas registered Third Party Energy Inspector</li> <li>All requirements mandatory</li> <li>Townhouse: As defined by the Dallas Residential Code; may not be multifamily building</li> </ul>					



# Residential Path



## COD Dallas Prescriptive Path Checklist



Item	Green Building Practice	Prescriptive Provisions						Field Notes	Comments
		Plan Review		Inspection					
		Yes	N/A	Yes	No	N/A			
332.5.1	<b>Storm Water</b>							Review drawings at plan review; verify at final inspection	
	70% of non-roof area has: 1. Vegetative landscape 2. Permeable paving, or 3. Sloped for water runoff to a permanent filtration feature								
332.5.2	<b>Water Efficiency</b>							Submitted at plan review; verify at final inspection	
332.5.2.1	Must utilize drip irrigation emitters for all bedding areas of an approved landscape plan.							Drip emitter indicated on Landscape plan	
	Must meet at least 3 of the following water reduction strategies: 2.1 The average flow rate for all lavatory faucets must be less than or equal to 2.0 gallons per minute							Performance properties noted on drawings or specified; review submittal cut sheets; verify at final inspection Average flow rate is per fixture; refer to manufacturer's product literature.	
	2.2 The average flow rate for all shower head must be less than or equal to 2.0 gallons per minute								
	2.3 The average flow rate for all toilets must be: 2.3.1 Less than or equal to 1.3 gallons per flush, or 2.3.2 Dual flush complying with ASME A 112.19.14, or 2.3.3 Comply with US EPA Water Sense; certified and labeled								
	2.4 Utilize ENERGY STAR labeled dishwashers that use 6.0 gallons or less per cycle. 2.5 Utilize ENERGY STAR labeled clothes washer with a modified energy factor $\geq 2.0$ and water factor of $< 5$ .								



# Residential Path



## COD Dallas Prescriptive Path Checklist



Item	Green Building Practice	Prescriptive Provisions						Field Notes	Comments
		Plan Review		Inspection					
		Yes	N/A	Yes	No	N/A			
332.5.3	<b>Energy Efficiency</b>	All projects must meet with the minimum requirements of the provisions of Dallas Energy Code							
332.5.4	<b>Heat Island Mitigation</b>							Specified on drawings or specifications at Plan Review; documented by construction submittals; verify at Final Inspection	
	Proposed projects shall install any one of the following options:								
	<b>Option 1:</b> An ENERGY STAR qualified roof on all roofs with a slope of 2:12 or greater.								
	<b>Option 2:</b> A vegetated roof may be installed subject to approval by the Building Official.							Must be approved by BI at Plan Review	
	<b>Option 3:</b> Radiant barrier with conventional shingles.							Installation in accordance with manufacturer installation instructions required. Radiant barriers will be considered an alternative path to Energy Star and cool roofs, under the condition that the radiant barrier installation complies with the manufacturer's recommendations which include, but are not limited to: the shiny side of the sheet faces out; the sheet is factory perforated; it is not installed on the attic floor or where the shiny side may become covered with dust; and it is not sandwiched between materials such as insulation and roof shingles. If the radiant barrier is applied to roof sheathing, the radiant barrier must face down into the attic and may not be covered. Radiant barriers have no insulative or R value and are not used in place of insulation. Reflective paint is not considered a radiant barrier.	
	<b>Option 4:</b> Encapsulated foam insulation between the roof rafters (R-22 or greater)							Installation in accordance with manufacturer installation instructions required	





# Residential Path



## COD Dallas Prescriptive Path Checklist



Item	Green Building Practice	Prescriptive Provisions					Field Notes	Comments
		Plan Review		Inspection				
		Yes	N/A	Yes	No	N/A		
332.5.5	<b>Indoor Air Quality</b>							Show on drawings at Plan Review; verify at Final Inspection
332.5.5.1	HVAC: All air-handling equipment and ductwork must be outside the fire-rated envelope of the garage.							
332.5.5.2	<b>Minimize Pollutants from the garage:</b>							
332.5.5.2.1	<b>Conditioned Spaces above a garage:</b> 1. Penetrations sealed 2. Floor and ceiling joist bays sealed 3. Painted walls and ceilings of conditioned spaces							
332.5.5.2.2	<b>Conditioned Spaces next to a garage:</b> 1. Penetration sealed 2. Doors weather stripped 3. Cracks at wall base sealed							
332.5.5.2.3	<b>Air Filters</b> a. MERV 8 or greater b. Air handlers sized to maintain air pressure and air flow c. Airtight air filter housing							
	End of Prescriptive							



# Residential Path



## ICC 700 Path

Categories include:

- Lot design, preparation and development
- Resource efficiency
- Energy efficiency
- Water efficiency
- Indoor environmental quality
- Operations, maintenance and Building owner education





## ICC 700 Path

- Lot Design preparation and Development:
  - Applies to developments
  - Lot selection
    - Lot
    - Multimodel transportation
  - Project Team, Mission Statement, and Goals
  - Lot design:
    - Natural resources
    - Slope disturbance
    - Soil disturbance and erosion
    - Storm water management
    - Landscape plan
    - Wildlife Habitat
    - Environmentally sensitive areas



# Residential Path



## ICC 700 Path

### Lot Construction

- On site supervision and coordination
- Trees and vegetation
- Soil disturbance and erosion

### Innovative practices

- Heat island mitigation
- Density
- Mixed-use developments
- Community garden



# Residential Path



## ICC 700 Path

### Resource Efficiency:

- Quality of Construction Materials and Waste:
  - Conditioned floor area
  - Material usage
  - Building dimensions and layout
  - Framing and structural plan
  - Prefabricated components
  - Stacked stories
  - Site applied finishing materials
  - Foundations
  - Above grade wall systems



# Residential Path



## ICC 700 Path

### Resource Efficiency:

- Enhanced Durability and reduced maintenance
  - Moisture management – Building Envelope
  - Roof Surfaces
  - Drip edge
  - Roof water discharge
  - Finished grade
- Reused or salvaged materials
  - Reuse of existing building
  - Salvaged materials
  - Scrap materials
- Recycled content building materials



# Residential Path



## ICC 700 Path

### Resource Efficiency:

- Recycle Construction waste
  - Construction waste management plan
  - On-site recycling
  - Recycled construction materials
- Renewable materials
  - Biobased products
  - Wood-based products
  - Manufacturing energy



# Residential Path



## ICC 700 Path

### Resource Efficiency:

- Recycling
  - Recycling
  - Food waste disposers
- Regional materials
- Life Cycle Analysis
- Innovative practices
  - Manufacturer's environmental management system concepts
  - Sustainable products
  - Universal design elements





# Residential Path



## ICC 700 Path

### Energy Efficiency:

All proposed projects must meet the minimum requirements of Dallas Energy Code



# Residential Path



## ICC 700 Path

### Water Efficiency:

- **Minimum one water point required**
- Indoor and Outdoor Water Use:
  - Indoor hot water usage
  - Water conserving appliances
  - Showerheads
  - Lavatory faucets
  - Water closets and urinals
  - Irrigation systems
  - Rainwater collection and distribution
  - Sediment filters



# Residential Path



## ICC 700 Path

### Water Efficiency:

- Innovative practices
  - Reclaimed, gray, or recycled water
  - Automatic shutoff water devices
  - Engineered biological system or intensive bioremediation system
  - Recirculating humidifier
  - Advanced wastewater treatment system



# Residential Path



## ICC 700 Path

- Indoor Environmental Quality:
  - Pollutant source control :
    - Space and water heating options
    - Solid fuel-burning appliances
    - Garages
    - Wood materials
    - Cabinets
    - Carpets
    - Hard surface flooring
    - Wall coverings
    - Adhesive and sealants
    - Insulation
    - Carbon monoxide (CO) alarms
    - Building entrance pollutants control
    - Non-smoking areas



# Residential Path



## ICC 700 Path

- Indoor Environmental Quality:
  - Pollutant control:
    - Spot ventilation
    - Radon control
  - Moisture management includes but not limited to:
    - Tile backing materials
    - Building ventilation systems
    - Radon control
    - HVAC system protection
    - Central vacuum systems
    - Living space contaminants



# Residential Path



## ICC 700 Path

- Indoor Environmental Quality:
  - Moisture management: Vapor, Rainwater, Plumbing, HVAC
    - Plumbing
    - Duct insulation
    - Relative humidity
  - Innovative Practices
    - Humidity monitoring system
    - Kitchen exhaust



# Residential Path



## ICC 700 Path

- **Operation, Maintenance, and Building Owner Education:**
  - Building owners' manual for One- and two-family dwellings
  - Training of building owners on operations and maintenance for One- and two-family dwellings and Multi-unit buildings
  - Construction, operation, and maintenance manuals and training for Multi-unit buildings



# Residential Path



## ICC 700 Path

How do I handle points that might require licensed plumbers or HVAC installers or city inspectors?

- Some water and HVAC credits may be beyond Provider capabilities
- Notify City of the point in question
- Verify if it is inspected by City inspectors, such as plumbing or mechanical
- Note on plan review checklist that this is inspected by City inspector
- Note on final inspection checklist that this is inspected by City Inspector
- Compliance determined by City Inspector





# Residential Path



## LEED v4 Homes

**Minimum 40 points required**

- **Point system**
- **Categories include:**
  - Integrative process
  - Location and transportation
  - Sustainable Sites
  - Water efficiency (1 point mandatory)
  - Energy and atmosphere
  - Materials and resources
  - Indoor environmental quality
  - Innovation
  - Regional priority



# Residential Path



## LEED v4 Homes

**Some LEED points require 3<sup>rd</sup> party verification. Is that part of my inspection?**

- No, where LEED requires 3<sup>rd</sup> party verification, qualified 3<sup>rd</sup> party is engaged to inspect, generate report
- As the 3<sup>rd</sup> Party Provider, review report generated by LEED third party for compliance ; not Provider responsibility to generate it



# Residential Path



## LEED v4 Homes

- The project is seeking LEED certification. Do I still need to perform a plan review and inspections even though there is a LEED Rater on the project and USGBC reviews submitted data?
  - Yes
- I'm the LEED AP - Homes consultant on the project. Can I be the 3<sup>rd</sup> Party Provider?
  - No; as then you would no longer be 3<sup>rd</sup> party to the project



# Residential Path



## Green Built Texas Protocol v3 Path

### Categories include:

- Water efficiency
- Energy efficiency (Meet with min. requirements of Dallas Energy Conservation code)
- Indoor air quality
- Durability and moisture
- Homeowner education



# Residential Path



## Green Built Texas Protocol v3 Path

### Water Efficiency:

- EPA WaterSense Certification, or
- Smart irrigation system
  - Turf
  - Mulch
  - WE toilets
  - Energy Star dishwasher
  - Hot water use reduction
  - Pipe runs and aids
- Water Conservation Strategies
  - HE fixtures or
  - Zone irrigation or
  - Low volume, nonspray irrigation or
  - Rainwater catchment system



# Residential Path



## Green Built Texas Protocol v3 Path

### Indoor Air Quality:

- Obtain EPA Indoor Air Plus Certification, **or**
- Comply with ENERGY STAR Version 3.0 HVAC Quality Installation requirements, **or**
- Implement all of the following strategies:
  - Heating/cooling design loads compliant with ACCA Manual J or ASHRAE; and Energy Star HVAC QI certificate
  - Seal duct system, ACCA Manual D;
    - Energy Star HVAC QI certificate, **or**
    - Compliance with prescriptive requirements or performance test alternative
  - Mechanical whole house ventilation complying with ASHRAE 62.2
  - Minimize room pressure differentials



# Residential Path



## Green Built Texas Protocol v3 Path

### Indoor Air Quality:

Additional strategies:

- Emission levels for carpet, padding, adhesives
- VOC content limits for paints and coatings
- Central vacuum system
- Certified structural plywood, OSB, particle board, MDF for formaldehyde emissions
- NAUF cabinetry
- Upgrade air return filtration



# Residential Path



## Green Built Texas Protocol v3 Path

- **Energy Efficiency:**  
All proposed projects must meet the minimum requirements of Dallas Energy Code
- **Durability and Moisture Management**
- **Homeowner education**





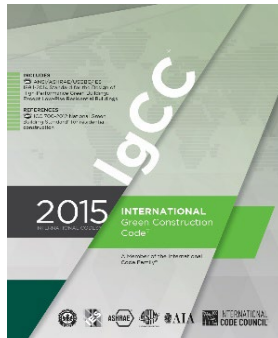
# Dallas Green Ordinance



## Reminder

*Energy and green are **NOT** the same!*

- Energy inspections required by the energy code not green building code
- Energy inspections are separate activity from the Green Building plan review and inspections





## Brain Teaser

**What Chapters of Dallas City Code does the green building ordinance affect?**





## Brain Teaser

**What Chapters of Dallas City Code does the green building ordinance affect?**

**Chapters 52, 53, 57**





## Brain Teaser

**Energy and Green are 2 different codes. Is this true or false?**

**True**





## Brain Teaser

For projects using LEED FOR HOMES as compliance path how many points are mandatory, and which one?





## Brain Teaser

For projects using LEED FOR HOMES as compliance path how many points are mandatory, and which one?

**1 point for 20% Water Reduction**





## Brain Teaser

**Dallas falls under which climate zone?**





## Brain Teaser

**Dallas falls under which climate zone?**

**2A**







## Module 2

# Permitting Process & Provider Program



# Dallas Green Ordinance



## Permitting process:

### Provider Registration Process

- Contractor number
- Pin Number - \$30 charge to reset PIN
- Email




# Dallas Green Ordinance



Fee = \$120

DATE: \_\_\_\_\_

  
City of Dallas

CONTRACTOR NO. (OFFICE USE ONLY)  
\_\_\_\_\_

### APPLICATION FOR CONTRACTOR REGISTRATION

PLEASE CHOOSE WHICH OF THE FOLLOWING TRADES YOU ARE REGISTERING FOR. SELECT ALL THAT APPLY.

<input type="checkbox"/> GENERAL RESIDENTIAL	<input type="checkbox"/> DEMOLITION	<input type="checkbox"/> GAS WELL
<input type="checkbox"/> GENERAL COMMERCIAL	<input type="checkbox"/> SWIMMING POOL	<input type="checkbox"/> ENERGY CODE PERMITS
<input type="checkbox"/> ROOFING	<input type="checkbox"/> CONCRETE/ASPHALT/PAVING	<input type="checkbox"/> GREEN BUILDING
<input type="checkbox"/> FOUNDATION	<input type="checkbox"/> LANDSCAPE	<input type="checkbox"/> GAS WELL PROVISIONS
<input type="checkbox"/> FENCE	<input type="checkbox"/> TREE SERVICE	

**CONTRACTOR INFORMATION**

OFFICER	TITLE	PIN
CONTRACTOR/EDGE	COMPANY NAME	
ADDRESS	CITY	STATE
PHONE NO.	FAX NO.	ZIP CODE
E-MAIL ADDRESS		LICENSE REQUIRED: <input type="radio"/> YES <input type="radio"/> NO

COMPANY PERSONNEL AUTHORIZED BY YOU TO SIGN PERMIT APPLICATIONS FOR YOUR COMPANY. AT THE TIME OF REGISTRATION YOU WILL ASSIGN YOURSELF AND YOUR PERSONAL IDENTIFICATION NUMBER (PIN). CONSIDERING YOUR PIN NUMBER IS YOUR RESPONSIBILITY, PIN NUMBERS MUST NOT EXCEED 9 DIGITS (NUMBERS ONLY) AND EACH WORKER MUST HAVE A DIFFERENT NUMBER.

NAME	TITLE	PIN
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

I HAVE CAREFULLY READ THE COMPLETED APPLICATION AND KNOW THE SAME IS TRUE AND CORRECT AND HEREBY AGREE TO COMPLY WITH ALL PROVISIONS OF THE CITY ORDINANCES AND STATE LAWS WILL BE COMPLIED WITH WHETHER HEREIN SPECIFIED OR NOT. I AGREE TO COMPLY WITH ALL PROVISIONS OF THE CITY ORDINANCES AND STATE LAWS WILL BE COMPLIED WITH WHETHER HEREIN SPECIFIED OR NOT. I AGREE TO COMPLY WITH ALL PROVISIONS OF THE CITY ORDINANCES AND STATE LAWS WILL BE COMPLIED WITH WHETHER HEREIN SPECIFIED OR NOT.

\_\_\_\_\_  
APPLICANT'S SIGNATURE

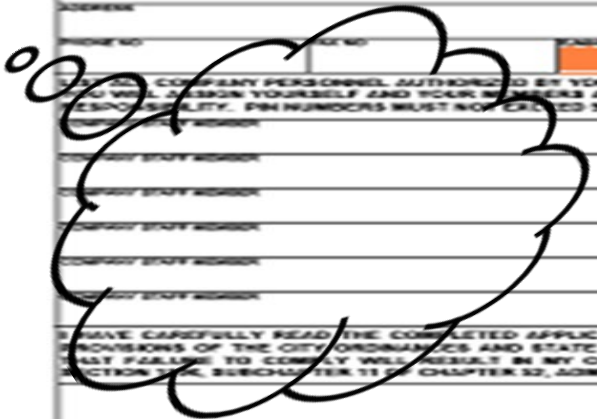
\_\_\_\_\_  
DATE

Contractor Number

PIN Number

Don't forget your E-mail

NOTE





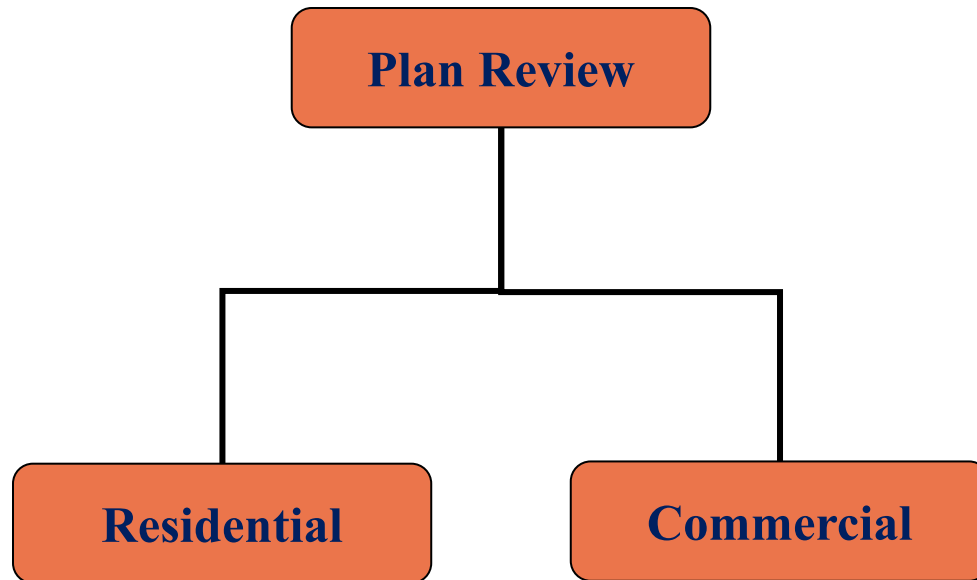
- **Third-party provider Responsibility:**
  - Plan Review: Submission of Plan Review Compliance Affidavit and checklist
  - Inspection: Submission of Final Inspection Compliance Affidavit
- **Design Professional, Contractor, Owner Responsibility:**
  - Contacting and engaging provider
  - Maintaining contact with Provider during construction
  - Submission of review documents
  - Submission of necessary submittals and supporting data
  - Making appointment for inspection(s)





## Plan Review

- Performed by 3<sup>rd</sup> Party Green Provider prior to Building Permit application



# Dallas Green Ordinance



## Third-party Responsibility

### Plan Review

- Performed by 3<sup>rd</sup> Party Green Provider prior to Building Permit application
- Verify compliance path
- Review drawings, specifications, and other documents necessary to determine compliance
- Submit signed and notarized Plan Review Compliance Affidavit
- Submit Plan Review Checklist





## Permit Application

### NEW CONSTRUCTION FOR COMMERCIAL BUILDINGS AND ADDITIONS



City of Dallas

#### APPLICATION CHECKLIST AND REQUIRED DOCUMENTS

By checking each requirement, you are stating that you have supplied correct and complete information. In the event that the required information is not contained in the submitted documents, you will be notified of the deficiency. Failure to supply the additional requested information within five (5) working days after notification may result in your application being delayed and eventually discarded. A new application, the original application, complete plans and a new checklist will be required for re-submittal for plan review. This re-submittal will be treated as a new application and will be processed in the order of receipt. ~~Complete the information sheet attached.~~

1. These plans comply with the Dallas Energy Conservation Code and the Green Building Ordinance (Ord. no. 27131).

Completed Commercial Green Building Program Plan Review Compliance Affidavit & Application Checklist from a Registered Third Party Green Building Provider.

An Energy Code Certificate will be submitted to the electrical inspector prior to final inspection.

2. Have you submitted with your application, certified copies of any instrument that contains a restriction on the use of or on construction on the affected property?

Yes  No, not applicable

3. An asbestos survey has been conducted in accordance with the Texas Asbestos Health Protection Rules and the National Emission Standards for Hazardous Air Pollutants for the area being renovated and/or demolished.

Yes  No (Permit cannot be issued prior to notification of survey being conducted.)

4. Documented proof that plans and specifications were submitted to the Texas Department of Licensing and Regulation that comply with the Texas Accessibility Standards (TAS) by a Registered Accessibility Specialist (independent contract provider) must be presented along with the building permit application.

Texas Department of Licensing and Regulation (TDLR) Project Number:



# Dallas Green Ordinance



## Plan Review Compliance Affidavit

**PRINT**

  
City of Dallas  
Dallas Green Building Program  
Plan Review Compliance Affidavit

Type of Construction:  
 Residential  New Construction  
 Commercial  Addition  
 First Time Finish Out

1. Address of Construction: \_\_\_\_\_ Permit No. \_\_\_\_\_  
2. Provider Name: \_\_\_\_\_  
3. Provider Registration No. \_\_\_\_\_

Registered as:  
 Residential Provider  
 Commercial Provider

I, \_\_\_\_\_, have reviewed the project drawings, specifications, and applicable information documents for this project and confirm that it has been designed to meet or exceed the green building requirements of the Dallas Green Building Code for:

Residential dwellings (one- or two-family dwellings)  
Compliance Path: Dallas Prescriptive, ICC 700, LEED for Homes, Green Built Texas (circle one)  
 Commercial  
Compliance Path: Chapter 61, LEED NC, LEED CS, LEED CI, Multifamily, Mixed Use (circle one)  
 Seeking certification (Identify certification under \_\_\_\_\_)

Therefore, I certify that I performed the Green Plan Review in compliance with the Third Party Provider Code of Ethics of the City of Dallas, and I am not a part of a company that provides design services to this client.

\_\_\_\_\_  
Provider Signature

\_\_\_\_\_  
State of Texas

\_\_\_\_\_  
County of \_\_\_\_\_

This affidavit was acknowledged before me on \_\_\_\_\_ by \_\_\_\_\_  
(Date) (Provider Name)

\_\_\_\_\_  
Notary Public  
(Notary Public Stamp)

Phase 2  
Issued 8-18-16 

**SIGN**

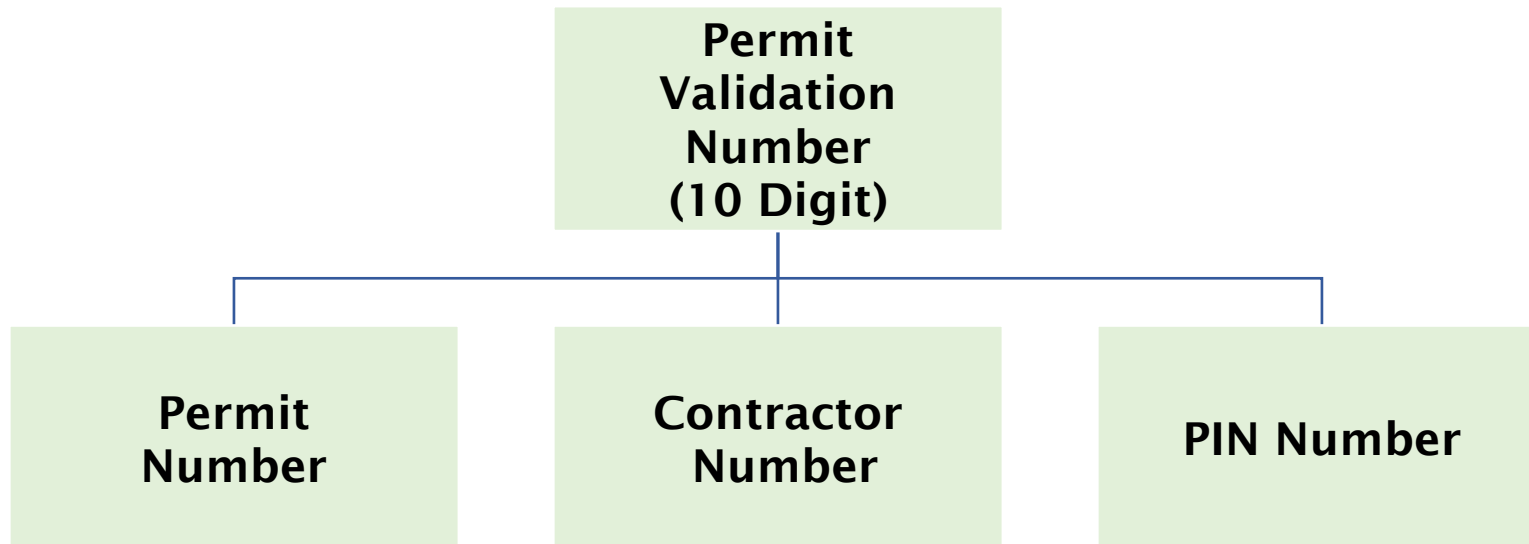




# Dallas Green Ordinance



Validate to Master Permit prior to submitting inspection compliance affidavit (**Mandatory**)



# Dallas Green Ordinance



## Third-party Responsibility

### Inspections

- Inspections performed by Third Party Provider
- Green building inspections must be completed before Final Inspection by the City is performed
- Provider is required to email Inspection Compliance Affidavit to the City of Dallas at [bigreencode@dallas.gov](mailto:bigreencode@dallas.gov) prior to final building inspection
- Provider maintains supporting documentation for a minimum of 6 months.



# Dallas Green Ordinance



## Inspection Compliance Affidavit

PRINT



City of Dallas

### Dallas Green Building Program Final Inspection Compliance Affidavit

Type of Construction:

- Residential
- Commercial
- New Construction
- Addition
- First Time Finish Out

1. Address of Construction: \_\_\_\_\_ Permit No. \_\_\_\_\_

2. Provider Name: \_\_\_\_\_

3. Provider Registration No. \_\_\_\_\_

Registered as:

- Residential Provider
- Commercial Provider

I, \_\_\_\_\_, have made site inspections for the project and have reviewed applicable informational and product submittals to verify that this project meets or exceeds the green building requirements of the Dallas Green Building Code for:

- Residential dwellings (one- or two-family dwellings)  
Compliance Path: Dallas Prescriptive, ICC 700, LEED for Homes, Green Built Texas (circle one)
- Commercial  
Compliance Path: Chapter 01, LEED NC, LEED CS, LEED CI, Multifamily, Mixed Use (circle one)
- Seeking certification (Identify certification under \_\_\_\_\_)
- TCO: The Contractor has made significant progress towards the completion of the required points / requirements. Should a TCO be granted I agree to provide a *Final Compliance Affidavit* upon receipt of all required documentation prior to Final Inspection and Final Certificate of Occupancy.

Furthermore, I certify that I performed the Green Building Inspection in compliance with the Third Party Provider Code of Conduct of the City of Dallas, and I am not a part of a company that provides design services to this client.

Provider Signature \_\_\_\_\_

State of Texas \_\_\_\_\_

County of \_\_\_\_\_

This affidavit was acknowledged before me on \_\_\_\_\_ by \_\_\_\_\_  
(date) (Provider Name)

Notary Public  
{Notary Public Stamp}

Phase 2  
Issued: 8-18-16

SIGN



# Dallas Green Ordinance



## Third-party Information

City of Dallas website  
[www.dallascityhall.com](http://www.dallascityhall.com)



Building Permits and Inspections



Current City Code



Green Building



# Dallas Green Ordinance



## Quality Control



- Ordinance Establishes a Quality Control Program
- Minimum 10% of the projects will be audited





## Review

- Provider Registration: Contractor #, PIN #, E-mail address
- Plan Review: Affidavit, Checklist
- Inspection: Scheduling, Results
- Final/Completion: Send Affidavit to City of Dallas; maintain documents for 6 months minimum





## Third Party Provider Program



# Dallas Green Ordinance



## Provider Qualifications:

Current certification by:

- Commercial:
  - ICC: IgCC Certification
  - USGBC: LEED AP with specialty, except Homes
- Residential:
  - ICC Green Building Residential Examiner
  - LEED for Homes
  - Green Built Texas Verifier
- Other nationally recognized certification approved by Building Official





# Dallas Green Ordinance



## Provider Qualifications:

- Minimum 2 years Green Building experience
  - Design, construction, management, inspections, operations
- Mandatory training by City of Dallas
- Written exam on Dallas Green Building Code
- Payment of annual registration fee (\$120) to register





## Duties and Responsibilities:

- Authority to enforce green building code
- Approved by and registered with Dallas
- Understand that a provider is not an employee of the City of Dallas
- Understand that a provider cannot grant variances or waive requirements
- Understand the scope of authority entrusted to a provider
- Agree to audit of green building plan reviews and inspection





## Duties and Responsibilities:

- Perform green building plan reviews and inspections in a timely and efficient manner
  - Verify compliance path
  - Review and verify submitted data
  - Prepare and submit completed affidavits of compliance
- Notify Sustainable Development and Construction Department of enforcement issues
- Perform duties and responsibilities as determined by the Sustainable Development and Construction department





## Duties and Responsibilities:

### Plan Review:

- Verify compliance path
- Verify application requirements by reviewing drawings, specifications, other data
- Prepare initial plan review checklist
- Issue affidavit of plan review compliance

**Note: Multifamily and mixed-use project plan review and inspections performed by commercial providers**





## Duties and Responsibilities:

### Inspection:

- Review supporting documentation during construction
- Conduct site inspection(s)
- Issue affidavit of inspection compliance
- Maintain supporting documentation including checklists, test reports, material data sheets and certifications, photographs, observation reports for **6 months**



# Dallas Green Ordinance



## Certifications

### Green building certification recognized for Residential:

- ICC Green Building Residential Examiner
- LEED for Homes
- Green Built Texas Verifier
- NGBS Verifier
- Other nationally recognized certification approved by Building Official



# Dallas Green Ordinance



## Code of Conduct

- **Competency:** Be knowledgeable of and adhere to policies of the City of Dallas Building Inspections, the Code, amendments, and procedures
  - Exercise reasonable judgment and skill in performance of plan reviews, inspections, and related activities
- **Integrity:** Be honest, fair and unbiased, trustworthy in the performance of plan review, inspection, and related activities
  - Misrepresentation or deceit, threats, coercion, or extortion and similar acts are prohibited
- **Accountability:** Ensure compliance with the Dallas Green Building Code



# Dallas Green Ordinance



## Code of Conduct

- ***Conflict of Interest:*** Avoid conflicts of interest and the appearance of a conflict of interest.
  - A conflict of interest exists when a Provider performs or agrees to perform a plan review, inspection, or related activity for a project in which the provider has a financial interest, whether direct or indirect.
  - A conflict of interest exists when a Provider 's professional judgment and independence are affected by their own family, business, property, or other personal interests or relationships





# Dallas Green Ordinance



## Code of Conduct

A Third-Party Provider **shall not**:

- Participate in a plan or arrangement that attempts or is purposed to evade the Dallas Green Building Code
- Knowingly provide inaccurate, deceitful, or misleading information to the City of Dallas, an owner, design professional, contractor/developer, or other person involved with a plan review, inspection, or related activity
- State or imply that the City will approve a variance



# Dallas Green Ordinance



## Code of Conduct

A Third-Party Provider **shall not**:

- Engage in an activity that constitutes dishonesty, misrepresentation, or fraud while performing a plan review, inspection, or related activity
- Perform a plan review, inspection, or related activity in an incompetent or negligent manner
- Perform a plan review, inspection, or related activity in which the Third-party Provider is an owner, in whole or in part, or is an employee of the owner



# Dallas Green Ordinance



## Code of Conduct

A Third-Party Provider **shall not**:

- Perform a plan review, inspection, or related activity for a building where the Third-Party Provider participated in creating the design of the project or is engaged in the construction of the project
- Represent themselves as an employee of the City of Dallas, Building Inspections, or as a provider hired by the City or Building Inspections



# Dallas Green Ordinance



## FAQ

I work for a design firm/contractor/ developer/owner. Can I perform the 3<sup>rd</sup> party review for my company?

- No, this is considered a conflict of interest under the Code and the interpretation of the Code.
- The 3<sup>rd</sup> party provider must be independent of the design firm, contractor, developer, owner or other and has no financial, business, or personal interest in the project
- It does not matter if the provider has no design or construction responsibility or is not involved with the project in its employment; they are employed by an entity that does



# Dallas Green Ordinance



## FAQ

I am an independent consultant and have been contracted to provide engineering or other similar services for a project. Can I perform the 3<sup>rd</sup> party review?

- No, this is a conflict of interest. As a consultant, you now have direct responsibilities to the project and are no longer 3<sup>rd</sup> party to the project





## Necessary Tools

- Dallas Green Building Ordinance
- Dallas Green checklists, and affidavits
- Commercial
  - IgCC 2015, preferably the code and commentary version
  - LEED Reference Guides
  - Other rating systems as applicable



# Dallas Green Ordinance



## Necessary Tools

Website:

<http://dallascityhall.com/departments/sustainabledevelopment/buildinginspection/pages/greenBuilding.aspx>

Ordinance and amendments

[https://dallascityhall.com/departments/sustainabledevelopment/buildinginspection/DCH%20documents/pdf/BI\\_2015\\_IGCC\\_Amendments\\_01-25-2017.pdf](https://dallascityhall.com/departments/sustainabledevelopment/buildinginspection/DCH%20documents/pdf/BI_2015_IGCC_Amendments_01-25-2017.pdf)

Plan review and inspection Affidavits, Green forms and Checklists

[https://dallascityhall.com/departments/sustainabledevelopment/buildinginspection/Pages/phase\\_two.aspx](https://dallascityhall.com/departments/sustainabledevelopment/buildinginspection/Pages/phase_two.aspx)





## Module 3

# Plan Review & Inspection







## Performing Plan review

Green Building Provider responsibility:

- Determine if construction documents are complete and in accordance with green building code
- Perform administrative procedures such as completing checklist and affidavit
- Verify materials, equipment, components comply with requirements
- Review supporting documentation





## Performing Plan review

### Green building Provider:

- Does not review zoning, structural, mechanical, electrical, utilities, egress, or other plan reviews required by Dallas
- Does not provide energy or accessibility reviews as part of a green building review
- Does not suggest or make design changes





## Performing Plan review

Where do we find the information to determine compliance at plan review?

- Typically, residential projects do not have written specifications
- Therefore, information must be on drawings
  - Verify plumbing fixtures and fittings data on plumbing sheets
  - Verify storm water provisions on site plan
  - Verify roof compliance on elevations or roof plan
  - Verify IAQ provisions in details
  - Verify penetrations and cracks sealed



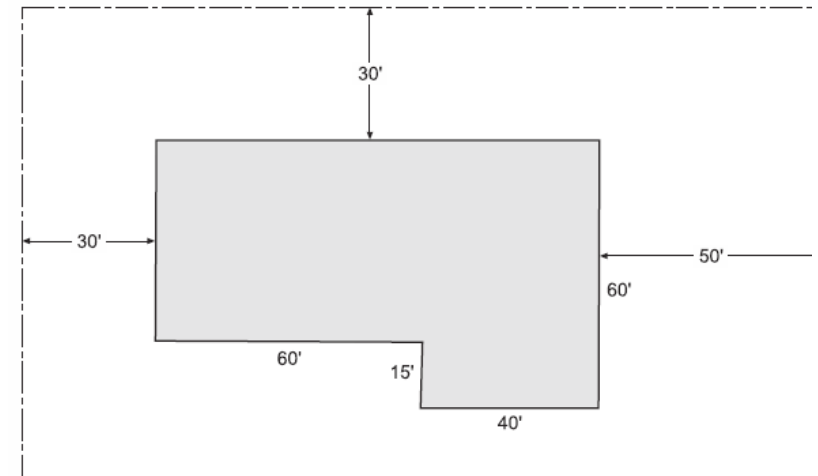


## Performing Plan review

### 332.5.1 Prescriptive Requirements

#### Stormwater

- 70% of nonroof area has:
  - Vegetative landscape or
  - Permeable paving or
  - Water runoff on impermeable paving



# Dallas Green Ordinance



## Performing Plan review

### 332.5.2 Water Efficiency

- Drip Emitters: At bedding areas of approved landscape plan
- Water Reduction Strategies (select 3 of 5)
  - Lavatory Faucets: Average flow rate of 2.0 gpm or less
  - Showerheads: Average flow rate of 2.0 gpm or less
  - Toilets: Select option
    - Less than or equal to 1.3 gallons per flush
    - Dual flush complying with ASME A 112.19.14
    - Comply with US EPA Water Sense; certified and labeled
  - Energy Star dishwasher
  - Energy Star clothes washer



# Dallas Green Ordinance



## Performing Plan review

### 332.5.2 Water Efficiency

- Verify water reduction selections
- Schedules, Cut Sheets for fixtures, dishwasher, clothes washers as applicable
- Landscape Plan: Verify drip emitters
- Supporting Data: Manufacturer data sheets for drip emitters, fixtures, dishwasher, clothes washer
- Inspection: Verify drip emitters, fixtures, dishwasher, clothes washer





## Performing Plan review

### 332.5.4 Heat Island Mitigation

- Energy Star qualified roof for roofs with 2:12 slope or greater
- Roof Plan: Sheet notes should identify roofing system and performance requirements
- Supporting Data: Manufacturer technical data sheets for roofing system installed
- Inspection: Verify roofing system installed matches data sheets





## Performing Plan review

### 332.5.5 Indoor Air Quality

- Drawings:
  - Verify location of HVAC and ductwork
  - Verify penetrations, joist bays, cracks at wall based are shown as sealed
  - Verify walls and ceilings shown as painted
  - Verify doors shown as weatherstripped
- Supporting Data: Manufacturer technical data sheets for fixing of air handlers and recommended filters
- Inspection:
  - Verify HVAC and ductwork located as shown on drawings
  - Verify all items sealed
  - Verify walls and ceilings are painted
  - Verify air filter is MERV 8 or greater







## Brain Teaser

**Can a residential provider work on multifamily projects?**





## Brain Teaser

Who performs the green plan reviews and inspections for City of Dallas?

No





## Brain Teaser

**Green ordinance applies to Remodels and Renovations.  
True or False?**





## Brain Teaser

**Green ordinance applies to Remodels and Renovations.**  
**False**



# Dallas Green Ordinance



## Contact Information

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**Rachel Colon**

*Senior Plans Examiner – Green Building Code*

*214.948.4465*

***Email:*** [bigreencode@dallas.gov](mailto:bigreencode@dallas.gov)



# Dallas Green Ordinance



## Q&A

